(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization

International Bureau



HOUR BUILDING BUILDING HOUR BUILD BUILD HE HAVE BUILD HOUR BUILD BUILD BUILD BUILD BUILD BUILD BUILD BUILD BUILD

(43) International Publication Date 3 March 2005 (03.03.2005)

PCT

(10) International Publication Number WO 2005/020068 A3

(51) International Patent Classification⁷:

G06F 1/00

(21) International Application Number:

PCT/GB2004/003560

(22) International Filing Date: 19 August 2004 (19.08.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

0319596.3

20 August 2003 (20.08.2003) G

(71) Applicant (for all designated States except US): MACRO-VISION EUROPE LIMITED [GB/GB]; Malvern House, 14-18 Bell Street, Maidenhead, Berkshire SL61BR (GB).

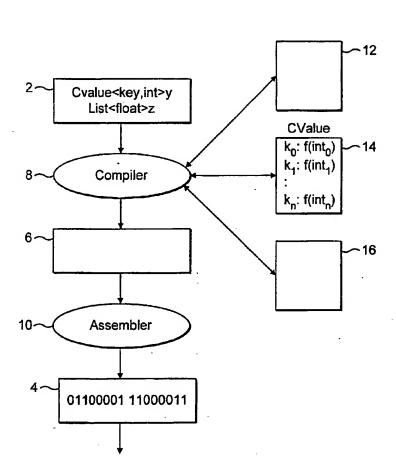
(72) Inventors; and

(75) Inventors/Applicants (for US only): STIEMENS, Alan, Walter [GB/GB]; 23 Cambrian Way, Reading, Berkshire RG31 7DD (GB). GRAY, Martin, Clive [GB/GB]; 65 Blagrove Drive, Wokingham, Berkshire RG41 4BD (GB). SULLEY, Christopher, Edward [GB/GB]; 2 Hamlot Street, Warfield, Bracknell, Berkshire RG42 3TT (GB).

- (74) Agent: NEEDLE, Jacqueline; Beck Greener, Fulwood House, 12 Fulwood Place, London WC1V 6HR (GB).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH,

[Continued on next page]

(54) Title: CODE OBFUSCATION AND CONTROLLING A PROCESSOR BY EMULATION



An individual (57) Abstract: security program (28) is randomly chosen by way of a respective key (32) and is then packaged with a games program (20) to provide an executable program file (34) which is applied to a storage media, such as an optical disc (30). Whenever the security program (28) is running, the object code it produces is obfuscated to make it difficult to overcome the protection by identifying and removing the security program. The obfuscated object code is produced by substituting a variable in source code with a function of the variable. When the source code is compiled to produce the object code, the function causes the variable to be presented in the compiled object code as a series of operations.



GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

with international search report

(88) Date of publication of the international search report: 8 December 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.